REMARKS

Claims 1-4, 7-13, 16, 17, 19 and 20 are pending. Claim 4 has been amended without narrowing its scope. Claims 1, 4, 7, 8, 12 and 16-17 are the independent claims. Favorable reconsideration is respectfully requested.

In the Office Action, claims 1-3, 8, 12, 13, 16 and 17 were rejected under 35 U.S.C. § 103(a) over U.S. Published Appln. No. 20030037167A1 (Garcia-Luna-Aceves) in view of U.S. Patent 5,034,933 (Sasuta). Claim 4 was rejected under 35 U.S.C. § 103(a) over Garcia-Luna-Aceves in view of U.S. Published Appln. No. 005850592A (Ramanathan). Claim 7 was rejected under 35 U.S.C. § 103(a) over Garcia-Luna-Aceves in view of U.S. Patent 6,381,467 (Hill et al.). Claims 9, 11, 19 and 20 were rejected under 35 U.S.C. § 103(a) over Garcia-Luna-Aceves in view of Sasuta et al., and further in view of U.S. Published Appln. No. 006137885A (Totaro et al.). Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Garcia-Luna-Aceves in view of Hill et al., and further in view of Totaro et al. Applicants submit that the independent claims are patentable over the cited art for at least the following reasons.

Claim 1 recites, inter alia, that in a relay station device having a first function for directly communicating with a center and a second function for communicating with the center via another relay station, one of a first operating mode for executing the first function and a second operating mode for executing the second function is set to the relay station device, and wherein a mode is selected based upon a communication quantity of the relay station device. A mode switching signal is transmitted when the communication quantity reaches a predetermined condition.

In the Office Action, it was conceded that Garcia-Luna-Aceves does not teach this feature. However, the Examiner took the position that it would have been obvious to

combine Sasuta, which shows a method of allocating communication resources, with Garcia-Luna-Aceves. Applicants respectfully, but strenuously, disagree.

It is improper to change the principle of operation of the primary reference in a proposed modification of that reference in an obviousness rejection. In this case, the manner of deciding which path to use in Garcia-Luna-Aceves is dependent on an optimization of distance between an IR and destination:

> "[T]he IR chooses a neighbor n as its successor (next hop) towards a destination if, and only if, (1) the distance to the destination through that neighbor is the smallest attainable distance to the destination through any neighbor, and (2) the distance to each intermediate hop in the path from the IR to the destination through neighbor n is the smallest attainable distance to that destination through any neighbor." Paragraph 0083 of Garcia-Luna-Aceves.

The Office Action proposes ***replacing*** this manner of deciding which path to use, with one that, in the Examiner's view, would read more like the independent claims. However, the only reason to make such a change is meet the features of the claims, which is totally improper.

To support such a proposed modification would require that the Examiner identify some teaching that would motivate one of skill in the art to change the way Garcia-Luna-Aceves works, so that it works like Sasuta. In an apparent attempt to provide such motivation, the Office Action states that it would have been obvious to combine the two references "to provide an efficient, automatic technique for temporarily allocating RF communication resources among RF communication systems, as suggested by [Sasuta]." The Examiner cites col. 1, lines 26-35 as allegedly providing motivation to combine these references. This portion of Sasuta does not begin to provide the legally required motivation.

The cited portion says, in relevant part: "[a]ccordingly, a need arises for an efficient, automatic technique for temporarily allocating RF communication resources among RF

communication systems." This generalized statement of an intent to provide efficiency does not relate in any way as to *why* one of ordinary skill in the art would replace the manner of deciding which path to use *from Garcia-Luna-Aceves* with that of Sasuta. The motivation must be shown to make *the proposed change.* Moreover, if this statement were sufficient, then any patent could be combined with any other, since the last lines of the Background usually say that "the need arises" for a better way of doing things.

In this case, the prior art being discussed in Sasuta's background section allocates "based on guesses concerning how heavily used or loaded the RF communication system will, and once the assignment of communication resources has been made, assignment is permanent in nature." Col. 1, lines 26-31. The advantages allegedly to be provided by the Sasuta technique are mentioned in contrast to systems in which resources are assigned based on guesses relating to loading, and which are inflexible because assignments of resources are permanent in nature. Garcia-Luna-Aceves method does not suffer from either of these disadvantages. For at least this reason, the generalized statement relating to increased efficiency are irrelevant as it relates to a motivation for combining Garcia-Luna-Aceves with Sasuta.

Moreover, if a proposed modification would have been obvious simply because it would make the primary reference more efficient, and there is no evidence in the prior art that it would have done so, then no invention that improved the efficiency of the prior art would ever be patentable. An Examiner would be able to combine as many references as he/she needed to meet all of the claim features and say that the motivation to combine them would have been to increase efficiency. Yet this is clearly not the law, since many patents are granted on inventions that improve the efficiency of the prior art.

From the above it is believed clear that the rejection based on the combination of Garcia-Luna-Aceves and Sasuta is completely improper and that no prima facie case of obviousness has been established.

In summary, the Office Action has failed to point out any teaching in the prior art, or knowledge generally available, would have lead one to make *the specific modification* proposed in the Office Action. Simply saying it would be more efficient does not meet this test, especially *without any evidence that it would make the Garcia-Luna-Aceves system more efficient.* If anything, the design goal of Garcia-Luna-Aceves would have *taught away* from the modification, which would have changed the principle of operation of Garcia-Luna-Aceves.

For at least this reason, the Office Action has failed to establish that one of ordinary skill in the art would have been motivated to make the proposed modification, and claim 1 is believed patentable. Claim 12 recites substantially the same feature and is believed patentable for similar reasons.

Claim 4 is directed to a network system. The network system includes: a center; a relay station device; and a terminal communicating with the center via the relay station device. The relay station device has a first function for directly communicating with the center and a second function for communicating with the center via another relay station, wherein one of a first operating mode for executing the first function and a second operating mode for executing the second function is set to the relay station device. When the relay station device cannot communicate with a host station including the another relay station, the relay station device is set to the first operating mode.

When the relay station device cannot communicate with the host station including the another relay station, the relay station device *outputs to the center a communication stop signal indicating to the center that the relay station device cannot communicate with the host*

station. When the host station can communicate with the relay station device, the host station outputs to the center a recovery declaration signal indicating that the host station can communicate with the relay station device, and wherein the center outputs to the relay station device a recovery notification signal indicating that the host station is communicable *based on the communication stop signal* and the recovery declaration signal, and wherein the relay station device is switched from the first operating mode to the second operating mode in response to the recovery notification signal.

In the Office Action, the Examiner conceded that Garcia-Luna-Aceves did not teach, inter alia, the feature of claim 4 by which when the relay station device cannot communicate with the host station including the another relay station, the relay station device outputs a communication stop signal indicating the host station to the center. Ramanathan is relied upon to remedy this deficiency. However, the portions of Ramanathan cited in the Office Action *do not* teach what is recited.

In prior Office Actions, the position was taken that the recited communication stop signal, sent when the relay station cannot communicate with the host station, *reads on the resignation signal of Ramanathan*. However, as was pointed out in the Amendment dated March 7, 2006, the resignation signal is sent when *a gateway* has determined, based on proximity conditions (presumably how close it is to other gateways), *that it is redundant or unnecessary*. The resignation signal is ***not*** sent when it is unable to communicate. (Col. 4, lines 30-41.)

In apparent response to the above points, the Examiner has, in the present Office Action, taken the position that, contrary to the position taken in the advisory action, it is *not* the resignation signal that corresponds to the communication stop signal after all. Instead, it is Ramanathan's affiliation procedure that is alleged to read on the communication stop signal. This is incorrect as well.

For an element in the prior art to be said to correspond to a claim limitation, it must correspond to all recitations of that limitation in the claim. That is, it must *fully* correspond. It cannot simply correspond to the limitation as recited, e.g., in one subparagraph, while not corresponding to the recitation as it appears in another subparagraph. In this case, the affiliation procedure of Ramanathan does not correspond to the recited sending of the communication stop signal.

For the affiliation procedure of Ramanathan to correspond to the communication stop signal, it would have to have all the characteristics of the communication stop signal set forth in claim 4. While it is true that the affiliation procedure is performed when a station is unable to transmit, it does not meet the other recited limitations of the communication stop signal.

Although the affiliation procedure of Ramanathan *is* performed when a station determines it is no longer able to communicate, it does not send a communication stop signal as recited.

In claim 4, the relay station (e.g., 102c) would, in the second communication mode, communicate with the center (e.g., 100) indirectly, i.e., via a host (e.g., 102a). When, as shown for example in Figure 2, the relay station device (102c) cannot communicate with the host (102a), indicated in the illustrated embodiment by the X'd out line between the elements 102c and 102a in Figure 2, a communication stop signal is sent by the relay station device to the center. This signal informs the center (100) regarding the condition of the host 102a. As a result, communication can instead be performed directly between the relay station and the center, in accordance with the second operating mode, the connection of which is shown by line 13 in Figure 2.

Once communication between the relay station device and the host station is reestablished, the *host* (102a) sends to the center (100) a recovery declaration signal. This

signal indicates to the center that the host (102a) can once again communicate with the relay station device. The center then outputs to the relay station device a recovery notification signal indicating that the host station is communicable *based on the communication stop signal and the recovery declaration signal.*

On the other hand, the affiliation procedure of Ramanathan does not include a signal from a device to a center with which the device had been communicating indirectly via an intervening device, indicating that it can no longer communicate with the intervening device. The signal sent in Ramanathan's affiliation procedure is an affiliation request message, which does *not* inform a center of a condition of a previously intervening host, and for at least this reason does not correspond to the recited communication stop signal. See col. 5, lines 1-10. Moreover, there is no teaching in Ramanathan of either of the recited recovery declaration signal, or the recovery notification signal, still less a recovery notification signal based in part on the recited communication stop signal (at least because no communication stop signal is shown in Ramanathan in the first place).

If the Examiner intends to maintain this rejection, it is requested that it be shown which signal of Ramanathan corresponds *exactly* to the communication stop signal of claim 4.

In view of the above, it is clear that: (a) Ramanathan does not issue a communication stop signal when it is unable to transmit; and (b) the affiliation request message of Ramanathan is completely unrelated to informing a center of a condition relating to a previously intervening device. For at least these reasons, no prima facie case of obviousness has been established, since, even as combined, Garcia-Luna-Aceves and Ramanathan do not meet all the features of claim 4.

Although the distinctions between claim 4 were believed clear previously, in order to expedite prosecution, claim 4 has been amended to more clearly recite the outputting of

the communication stop signal. The amended language is intended to have the same scope as the previous claim language, and is not believed to narrow the claim in any way.

Claim 7 recites, inter alia, that the first relay station device is set to one of a first operating mode for executing said first function and a second operating mode for executing said second function based on said communication quantity data and that a mode switching signal is transmitted when the communication quantity reaches a predetermined condition. In the Office Action, it was conceded that Garcia-Luna-Aceves does not teach this feature. Hill et al. was alleged to remedy this deficiency.

Applicants maintain their arguments that the combination is improper for at least the reasons set forth in the previous responses. In particular, in view of the design of Garcia-Luna-Aceves, which is based on optimizing the distance between the IR and the destination, there would have been no motivation to modify Garcia-Luna-Aceves to add another variable, such as the amount of communication arriving at the IR, in deciding whether direct or indirect communication should be employed.

Moreover, claim 7 recites the transmission of the mode switching signal when the communication quantity reaches a predetermined condition, which is neither taught nor suggested in any of the cited references. The Examiner took the position that the negotiation of Hill reads on the recited mode switching signal. However, no particular signal is identified in the portion of Hill referred to by the Examiner that corresponds to the mode switching signal, as recited. For at least this reason, claim 7 is believed patentable over the cited references.

Claim 8 is directed to a network system. The network system includes: a center; a relay station device; and a terminal communicating with the center via the relay station device. The relay station device has a first function for directly communicating with the center and a second function for communicating with the center via another relay station. One of a first

operating mode for executing the first function and a second operating mode for executing the second function is set to the relay station device in response to a message indicating mode switching transmitted from a slave station including the terminal.

Garcia-Luna-Aceves does not teach the feature that one of a first operating mode for executing the first function and a second operating mode for executing the second function is set to the relay station device in response to a message indicating mode switching transmitted from a slave station including the terminal. In the Office Action, Sasuta was again relied upon to remedy this deficiency. In particular, the Office Action relied upon an alleged teaching in col. 3, lines 15-21 as allegedly reading upon the above-mentioned feature of claim 8.

The portion of Sasuta cited in the Office Action discusses the general concept of requesting additional resources if a fully loaded condition is encountered:

> Yet another scheme would hold all R of the resources (208) in reserve unless a specific request for additional resources were received from a communication system in need. If System 1 (201) were fully loaded such that all N of the permanently allocated resources (203) were in use, and yet had need of more resources to permit additional communication, System 1 (201) would request the allocation of an additional resource, and one of the R available resources (208) from the reserve group (207) would then be assigned to System 1 (201). Col. 3, lines 12-21.

However, there is no teaching or suggestion of the limitation of claim 8 discussed above. The request by system 1 (201) for more resources in Sasuta does not meet the recited limitation that one of a first operating mode for executing the first function and a second operating mode for executing the second function is set to the relay station device in response to a message indicating mode switching transmitted from a slave station including the terminal.

In the most recent Office Action, at page 18, the Examiner stated that Sasuta "is only relied upon to disclose the mode switching signal." However, as was pointed out previously, and ignored in the Office Action, Sasuta's request for resources is not a message indicating mode switching, *as mode switching is defined in the rest of the claim.* In order for the signal relied upon in Sasuta to correspond to the mode switching signal, it must ***relate to mode switching*** as defined in claim 8.

In fact, there is no teaching in Sasuta that the request for more resources relates in any way to whether there is direct communication with a center (the recited first mode/function) or communication via a relay station (the recited second mode/function). Thus, contrary to the assertion at page 18 of the Office Action, there is no signal in Sasuta that corresponds to the "mode switching signal." The Examiner is requested in the next action to explain how a signal that does *not* relate to mode switching can be said to correspond to a mode switching signal.

The fact that the request for additional resources is "only relied upon to disclose the mode switching signal" does not relieve the Examiner of the obligation to show that the request for additional resources actually show a *mode switching* signal, as mode switching is defined in claim 8. The Examiner has failed to make such a showing.

For at least this reason, even if Sasuta and Garcia-Luna-Aceves are combined, the combination does not meet all of the limitations of claim 8, and no prima facie case of obviousness has been established.

For at least this reason, claim 8 is believed patentable over the cited references. Claims 16 and 17 recite a similar feature and are believed patentable for substantially similar reasons.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

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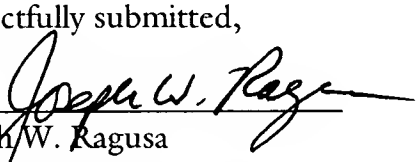
Respectfully submitted,

By 

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